WHAT IS CLAIMED IS:

1. A liquid phase growth method comprising the steps of:

immersing a substrate in a crucible that stores a solvent having a growth material dissolved therein; and

cooling the solvent from an interior thereof.

2. The liquid phase growth method according to Claim 1, wherein the solvent is cooled from a central part thereof.

3. The liquid phase growth method according to Claim 1, wherein the cooling step is carried out by letting a medium flow through a tube immersed in the crucible.

4. The liquid phase growth method according to Claim 1, wherein the cooling step is carried out by letting a medium flow through a hole formed in a jig for holding the substrate.

5. The liquid phase growth method according to Claim 1, wherein the cooling step is carried out by letting a medium flow through a hole formed in the crucible.

6. The liquid phase growth method according to

Claim 3, wherein the medium is a gas.

7. The liquid phase growth method according to Claim 1, wherein a liquid phase growth bath for formation of a p^- type Si layer is used as the crucible and, subsequent thereto, a liquid phase growth bath for formation of an n^+ type Si layer is used as the crucible.

8. The liquid phase growth method according to Claim 1, wherein the growth material is Si, Ge, or GaAs.

9. The liquid phase growth method according to Claim 1, wherein the solvent is a melt of In or Sn.

10. A liquid phase growth apparatus comprising:

a crucible for storing a solvent having a growth material dissolved therein;

a wafer cassette for holding a substrate to be immersed in the solvent; and

a cooling section for cooling the solvent from an interior thereof.

11. The liquid phase growth apparatus according to Claim 10, wherein the cooling section is a tube which is immersed in the crucible and through which a

medium is made to flow.

12. The liquid phase growth apparatus according to Claim 10, wherein the cooling section is a hole which is formed inside the wafer cassette and through which a medium is made to flow.

13. The liquid phase growth apparatus according to Claim 10, wherein the cooling section is a hole which is formed in the crucible and through which a medium is made to flow.

14. The liquid phase growth apparatus according to Claim 11, wherein the medium is a gas.

15. The liquid phase growth apparatus according to Claim 14, wherein the gas is hydrogen or nitrogen gas as an atmospheric gas.

16. The liquid phase growth apparatus according to Claim 10, wherein the crucible comprises a liquid phase growth bath for formation of a p^- type Si layer and a liquid phase growth bath for formation of an n^+ type Si layer.

17. The liquid phase growth apparatus according to Claim 10, wherein the wafer cassette is rotatable

about its own axis.

18. The liquid phase growth apparatus according to Claim 10, wherein the wafer cassette is revolvable about an axis different from its own axis.

19. The liquid phase growth apparatus according to Claim 10, wherein the growth material is Si, Ge, or GaAs.

20. The liquid phase growth apparatus according to Claim 10, wherein the solvent is a melt of In or Sn.